



MEDIA RELEASE

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Children's Cancer Foundation invests \$1 million to fund research into childhood cancer

The Murdoch Childrens Research Institute has received a major boost towards life-changing childhood cancer research with the donation of more than \$1 million by the Children's Cancer Foundation towards three innovative research projects.

The projects, which will receive funding during the next three years, will enable researchers to better understand the genetic changes that occur in childhood cancers and to develop new diagnostic and clinical tools. This will lead to more effective treatment and prevention for childhood cancers, including leukaemia, brain tumours and solid tumours.

'The Children's Cancer Foundation is committed to investing in Melbourne as a global leader in childhood cancer research. Each of these three studies will improve our understanding of the genetic drivers of childhood cancers and lead to changes in the way clinicians diagnose and make clinical treatment decisions for children,' Children's Cancer Foundation Chief Executive Aileen Boyd-Squires says.

'We are proud to fund innovative research that will provide Australian children with cancer with targeted and less harmful treatments, and potentially better outcomes.'

Professor Andrew Elefanty, who received more than \$460,000 to model childhood leukaemia in the laboratory using human pluripotent stem cells, says the funding will enable his team of researchers to introduce cancer-causing fusion oncogenes into stem cells. They can then compare the development of normal blood cells with blood cells carrying the oncogenes to understand how they alter normal blood cell growth.

'The recent breakthrough in our ability to create normal blood cells in the laboratory means we can now more accurately model childhood diseases of the blood, such as leukaemia,' Prof Elefanty says.

'With this funding, we will be able to learn more about the abnormal genes that cause the leukaemia, identify improved combinations of available anti-leukaemia drugs, and search for new treatments to help children with these illnesses.'

The Foundation will be providing \$280,000 towards an initiative that will lead to transcriptome sequencing being implemented in a clinical setting and used for precision cancer medicine. Transcriptome sequencing is a technique to read the genetic code in cancer cells to identify the cell changes that cause cancer, like leukaemia. The research team will use complex bioinformatics methods to analyse and understand the sequencing data that will be generated through the study, and use this to develop a clinical tool to guide treatment options.

Associate Professor Paul Ekert, who is leading this initiative, says this initiative will enable researchers, and ultimately clinicians, to identify major changes in genes that are driving childhood cancers, particularly leukaemia.

'Our experience to date shows that using transcriptome sequencing to find these changes is more effective than conventional techniques,' A/Prof Ekert says.



'This project will take us forward to the next stage, where we trial our techniques as part of the clinical assessment to show how it can change treatments for children with leukaemia, and eventually other types of cancer.'

'This is going to be an exciting three years,' A/Prof Ekert says.

The Foundation will provide \$271,000 over two years towards research that will increase understanding of childhood brain cancer and solid tumours, and advance its transition into clinical practice. The study will identify the genes that fuse to cause cancer and investigate the factors that cause these alterations. The aim is to use this information to develop a frontline blood test to map the genetic nature and profile of tumours in advance of any major surgery or biopsy.

A/Prof Ekert says the initiative, a joint venture between the institute, the Victorian Comprehensive Cancer Centre, the University of Melbourne and the Children's Cancer Foundation, will help drive new ways to identify the genetic changes that occur in these cancers.

'We hope that this will open up opportunities for us to use less-invasive methods, including using blood samples, for identifying tumours and following their responses to treatment,' A/Prof Ekert says.

Professor Richard Saffery, who heads the Institute's Cancer and Disease Epigenetics laboratory, says it is an exciting time to be researching the causes of childhood cancers.

'As with individual children, no two childhood tumours are ever identical. Each has its own properties and behaviour which in the past has been tremendously difficult to predict.

'Using state of the art technologies now available within MCRI we can, for the first time, begin to fully reveal the molecular features of individual tumours in a way that offers great potential for individually tailored, precision medicine.

'This funding provides a tremendous boost to our ultimate goal of fully characterising tumours of children in a manner rapid enough to enable individual tailoring of treatments in the clinic,' Prof Saffery says.

The Children's Cancer Foundation is the principal philanthropic funder of paediatric cancer research at Murdoch Childrens Research Institute. This recent funding brings the Foundation's support of MCRI to \$4 million across project funding, clinical trial resourcing, research career development, and biobanking.

The Children's Cancer Foundation was established in 1992 and has distributed \$45 million in research funding, clinical care and family support for children with cancer.

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Media contacts

- Katherine Loftus Katherine.loftus@mcri.edu.au 0416 013 689
- Laura Beckett laura@childrenscancerfoundation.com.au 0422 485 807

Available for interview

- A/Prof Paul Ekert/Prof Andrew Elefanty/Prof Richard Saffery
- Aileen Boyd-Squires, Chief Executive, Children's Cancer Foundation
- Jeremy Smith, Chairman, Children's Cancer Foundation